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AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A method for supporting multiple mobile IP sessions with dynamically allocated home IP addresses in a network, the method comprising at a Home Agent (HA) the steps of:

receiving a registration request ultimately sent from a Mobile Node (MN), the request comprising a care-of address (COA) and a home IP address;

verifying if any mobility bindings exist for the MN;

if yes, verifying if the COA from the registration request is equal to the COA from the latest registration request from the MN;

if no, verifying if the home IP address in the registration request is zero;

if yes, verifying if the MN has reached its session number limit;

if no:

creating a new mobile IP session for the MN; and

if yes:

retrieving the home IP address associated with
~~the~~ a first mobility binding for the MN;

removing any other mobility binding for the MN;

and

returning a registration response.

2. (Original) The method of claim 1, wherein the step of creating a new session further comprises the steps of:

allocating dynamically a home IP address for the MN; and

creating a mobility binding for the MN.

3. (Currently amended) The method of claim 1, further comprising, if the home IP address in the registration request is not zero, the step of:

refreshing the first mobility binding.

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4. (Original) The method of claim 1, further comprising, if no mobility bindings exist, the step of:

creating a new mobile IP session for the MN comprising:
allocating dynamically a home IP address for the MN; and
creating a mobility binding for the MN.

5. (Currently amended) The method of claim 1, further comprising, if the COA from the registration request is equal to the COA from the latest registration request from the MN, the steps of:

verifying if the home IP address in the registration request is zero; and
if yes, creating a new mobile IP session for the MN comprising:
allocating dynamically a home IP address for the MN; and
creating a mobility binding for the MN; and
if no, refreshing the first mobility binding for the MN.

6. (Original) The method of claim 1, wherein the registration request is forwarded to the HA by a Foreign Agent (FA).

7. (Original) The method of claim 6, further comprising, prior to forwarding by the FA the registration request to the HA, the steps of:

sending by the FA a message to an Authentication, Authorisation and Accounting Server (AAA) to verify if the AAA approves the registration request; and
receiving by the FA a response from the AAA.

8. (Original) The method of claim 7, wherein the step of forwarding by the FA the registration request to the HA is only performed upon reception of a positive response from the AAA.

9. (Currently amended) A system for supporting multiple mobile IP sessions with dynamically allocated home IP addresses in a network, the system comprising a Home Agent (HA), wherein the HA:

receives a registration request ultimately sent from a Mobile Node (MN), the request comprising a care-of address (COA) and a home IP address;

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verifies if any mobility bindings exist for the MN;
if yes, verifies if the COA from the registration request is equal to the COA from the latest registration request from the MN;
if no, verifies if the home IP address in the registration request is zero;
if yes, verifies if the MN has reached its session number limit;
if no:
creates a new mobile IP session for the MN; and
if yes:
retrieves the home IP address associated with the a first mobility binding for the MN;
removes any other mobility binding for the MN; and
returns a registration response.

10. (Original) The system of claim 9, wherein the HA to create a new session:
allocates dynamically a home IP address for the MN; and
creates a mobility binding for the MN.
11. (Currently amended) The system of claim 9, wherein, if the home IP address in the registration request is not zero, the HA further:
refreshes the first mobility binding.
12. (Original) The system of claim 9, wherein, if no mobility bindings exist, the HA further:
creates a new mobile IP session for the MN, to what end it:
allocates dynamically a home IP address for the MN; and
creates a mobility binding for the MN.
13. (Currently amended) The system of claim 9, wherein, if the COA from the registration request is equal to the COA from the latest registration request from the MN, the HA further:
verifies if the home IP address in the registration request is zero; and
if yes, creates a new mobile IP session for the MN, to what end it:
allocates dynamically a home IP address for the MN; and

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creates a mobility binding for the MN; and
if no, refreshes the first mobility binding for the MN.

14. (Original) The system of claim 9, further comprising a Foreign Agent (FA) that forwards the registration request to the HA.

15. (Original) The system of claim 14, further comprising an Authentication, Authorisation and Accounting Server (AAA), and wherein, prior to forwarding by the FA the registration request to the HA, the FA further:

sends a message to the AAA to verify if the AAA approves the registration request;
and
receives a response from the AAA.

16. (Original) The system of claim 15, wherein the FA only forwards the registration request to the HA upon reception of a positive response from the AAA.

17. (Currently amended) A Home Agent (HA) for supporting multiple mobile IP sessions with dynamically allocated home IP addresses in a network, the HA comprising an Input/Output unit and a processing unit, wherein:

the Input/Output unit:

receives a registration request ultimately sent from a Mobile Node (MN), the request comprising a care-of address (COA) and a home IP address; and

sends relevant data from the registration request to the processing unit;
receives data for a registration response from the processing unit; and
returns the registration response; and

the processing unit:

verifies if any mobility bindings exist for the MN;

if yes, verifies if the COA from the registration request is equal to the COA from the latest registration request from the MN;

if no, verifies if the home IP address in the registration request is zero;

if yes, verifies if the MN has reached its session number limit;

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if no:
creates a new mobile IP session for
the MN; and

if yes:
retrieves the home IP address
associated with the a first mobility binding for the MN; and
removes any other mobility binding
for the MN.

18. (Original) The Home Agent (HA) of claim 17, wherein the processing unit to create a new session:

allocates dynamically a home IP address for the MN; and
creates a mobility binding for the MN.

19. (Currently amended) The Home Agent (HA) of claim 17, wherein, if the home IP address in the registration request is not zero, the processing unit further:

refreshes the first mobility binding.

20. (Original) The Home Agent (HA) of claim 17, wherein, if no mobility bindings exist, the processing unit further:

creates a new mobile IP session for the MN, to what end it:

allocates dynamically a home IP address for the MN; and
creates a mobility binding for the MN.

21. (Currently amended) The Home Agent (HA) of claim 17, wherein, if the COA from the registration request is equal to the COA from the latest registration request from the MN, the processing unit further:

verifies if the home IP address in the registration request is zero; and
if yes, creates a new mobile IP session for the MN, to what end it:
allocates dynamically a home IP address for the MN; and
creates a mobility binding for the MN; and
if no, refreshes the first mobility binding for the MN.

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22. (Original) The Home Agent (HA) of claim 17, further comprising a memory that:
receives requests for data from the processing unit; and
returns the requested data to the processing unit.

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